

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended): An optical modulator, comprising:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a flexible light transmitting member, disposed so as to face with a boundary surface of said optical waveguide and has a gap between the flexible light transmitting member and the boundary surface of the optical waveguide; and

a modulation device for bringing said flexible light transmitting member into contact with the boundary surface of the optical waveguide,

wherein said modulation device switches functions of said optical waveguide in relation to the flexible light transmitting member, one function being that said flexible light transmitting member is brought into contact with the boundary surface of said optical waveguide to stop emitting of the light propagating in said optical waveguide from said second end surface to direct light outside via the boundary surface, another function being that said flexible light transmitting member is brought into a non-contact condition with respect to the boundary surface of said optical waveguide to emit the light propagating in said optical waveguide.

2. (Original): The optical modulator according to claim 1, wherein said flexible light transmitting member is formed of a transparent material having electrical conductivity, and said

modulation device brings the light transmitting member into contact with the boundary surface of the optical waveguide by using static electricity.

3. (Original): The optical modulator according to claim 1, wherein a plurality of light transmitting members which are said flexible light transmitting member are arranged in a direction orthogonal to a traveling direction of the light in the optical waveguide, and said modulation device is set in correspondence with each of said plurality of light transmitting members.

4. (Currently Amended): An exposure head, comprising:

an optical modulator which includes:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a plurality of flexible light transmitting members, disposed so as to face with a boundary surface of said optical waveguide and has a gap between the flexible members and the boundary surface of the optical waveguide, said plurality of flexible light transmitting members being arranged in a direction orthogonal to a traveling direction of the light in the optical waveguide; and

a modulation device for bringing said plurality of flexible light transmitting members into contact with the boundary surface of the optical waveguide, said modulation device being set in correspondence with each of said plurality of flexible light transmitting members; and

a light source allowing the light to enter into the first end surface on a light incidence side of the optical waveguide,

wherein said modulation device switches functions of said optical waveguide with respect to the plurality of flexible light transmitting members, one function being that at least one of the flexible light transmitting members is brought into contact with the boundary surface of said optical waveguide to stop emitting of the light propagating in said optical waveguide from said second end surface to direct light outside via the boundary surface, another function being that said at least one flexible light transmitting member is brought into a non-contact condition with respect to the boundary surface of said optical waveguide to emit the light propagating in said optical waveguide.

5. (Original): The exposure head according to claim 4, wherein said light source emits the light diffusing in an arrangement direction of said plurality of flexible light transmitting members, and each of said plurality of flexible light transmitting members is disposed so as to have a predetermined distance from the first end surface of the light incidence side of the optical waveguide with respect to the traveling direction of the light.

6. (Original): The exposure head according to claim 4, wherein said light emitted from said light source is directly entered to the first end surface on the light incidence side of said optical waveguide.

7. (Original): The exposure head according to claim 4, further comprising:
a lens disposed between a light emission portion of said light source and the first end surface on the light incidence side of said optical waveguide.

8. (Original): The exposure head according to claim 4, further comprising:
an imaging optical system focusing the light emitted from the optical waveguide at a predetermined position.

9. (Original): An image recording apparatus, comprising:

an exposure head; and

a scanning device for relatively moving a photosensitive material and said exposure head,
said exposure head having:

an optical modulator which includes:

an optical waveguide for receiving light entered from a first end surface thereof and for
emitting the light from a second end surface opposing to the first end surface;

a plurality of flexible light transmitting members, disposed so as to face with a boundary
surface of said optical waveguide and has a gap between the flexible members and the boundary
surface of the optical waveguide, said plurality of flexible light transmitting members being
arranged in a direction orthogonal to a traveling direction of the light in the optical waveguide;
and

a modulation device for bringing said plurality of flexible light transmitting members into
contact with the boundary surface of the optical waveguide, said modulation device being set in
correspondence with each of said plurality of flexible light transmitting members; and

a light source allowing the light to enter into the first end surface on a light incidence side
of the optical waveguide.

10. (Withdrawn): An optical modulator, comprising:

an optical waveguide for receiving light entered from a first end surface thereof and for
emitting the light from a second end surface opposing to the first end surface;

a modulation member having a light interference film, disposed such that a surface of the light interference film faces the first end surface on a light emission side of the optical waveguide; and

a driving device for changing an angle of said modulation member with respect to the light emitted from said optical waveguide.

11. (Withdrawn): The optical modulator according to claim 10, wherein said driving device changes the angle of the modulation member by using static electricity.

12. (Withdrawn): The optical modulator according to claim 10, wherein a plurality of modulation members which are said modulation member are arranged in a direction orthogonal to a traveling direction of the light in the optical waveguide, and said driving device is set in correspondence with each of said plurality of modulation members.

13. (Withdrawn): An exposure head, comprising:

an optical modulator which includes:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a plurality of modulation members each having a light interference film, disposed so that a surface of the light interference film faces the first end surface on a light emission side of the optical waveguide, said plurality of modulation members being arranged in a direction orthogonal to a traveling direction of the light in the optical waveguide; and

a driving device for changing each of the angles of said plurality of modulation members with respect to the light emitted from the optical waveguide, said driving device being set in correspondence with each of said plurality of modulation members; and

a light source allowing the light to enter into the first end surface on a light incidence side of the optical waveguide.

14. (Withdrawn): The exposure head according to claim 13, wherein said light source emits the light diffusing in an arrangement direction of said plurality of modulation members, and said optical waveguide has a length in a direction of light transmission so that an amount of the light entered to each of said plurality of modulation members becomes uniform in correspondence with the light diffusion.

15. (Withdrawn): The exposure head according to claim 13, wherein said light emitted from said light source is directly made incident upon the first end surface on the light incidence side of said optical waveguide.

16. (Withdrawn): The exposure head according to claim 13, further comprising:
a lens disposed between a light emission portion of said light source and the first end surface on the light incidence side of said optical waveguide.

17. (Withdrawn): The exposure head according to claim 13, further comprising:
an imaging optical system for focusing the light emitted from the optical waveguide at a predetermined position.

18. (Withdrawn): An image recording apparatus comprising:
an exposure head; and
a scanning device for making a photosensitive material and said exposure head move relatively,
said exposure head having:
an optical modulator which includes:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a plurality of modulation members each having a light interference film, disposed so that a surface of the light interference film faces the first end surface on a light emission side of the optical waveguide; said plurality of modulation members being arranged in a direction orthogonal to a traveling direction of the light in the optical waveguide; and

driving device for changing each of the angles of said plurality of modulation members with respect to the light emitted from the waveguide, said driving device being set in correspondence with each of said plurality of modulation members; and

a light source allowing the light to enter into the first end surface on a light incidence side of the optical waveguide.

19. (Previously Presented): The modulator of claim 1, wherein the boundary surface of the optical waveguide is on a surface different from the first end surface and the second end surface.

20. (Currently Amended): An optical modulator, comprising:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a plurality of light adjustment members, disposed to face at least one of: a boundary surface of the optical waveguide and the second end surface of the optical waveguide, wherein the boundary surface is disposed on a face of the optical waveguide other than the first and second end surfaces; and

a driving device to change a configuration of the light adjustment member to modulate light propagated by the waveguide,

wherein said driving device switches functions of said optical waveguide in relation to at least one of the plurality of light adjustment members, one function being that said at least light adjusting member is brought into contact with the boundary surface of said optical waveguide to stop emitting of the light propagating in said optical waveguide from said second end surface to direct light outside via the boundary surface, another function being that said at least one light adjusting member is brought into a non-contact condition with respect to the boundary surface of said optical waveguide to emit the light propagating in said optical waveguide.

21. (Currently Amended): An exposure head, comprising:

an optical modulator which includes:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a plurality of light adjustment members, disposed to face at least one of: a boundary surface of the optical waveguide and the second end surface of the optical waveguide, wherein the boundary surface is disposed on a face of the optical waveguide other than the first and second end surfaces; and

a driving device to change a configuration of the light adjustment member to modulate light propagated by the waveguide,

wherein said driving device switches functions of said optical waveguide in relation to at least one of the plurality of light adjustment members, one function being that the at least one light adjusting member is brought into contact with the boundary surface of said optical

waveguide to stop emitting of the light propagating in said optical waveguide from said second end surface to direct light outside via the boundary surface, another function being that said light adjusting member is brought into a non-contact condition with the boundary surface of said optical waveguide to emit the light propagating in said optical waveguide.

22. (Previously Presented): An image recording apparatus, comprising:

- an exposure head; and
- a scanning device for relatively moving a photosensitive material and said exposure head, said exposure head having:
 - an optical modulator which includes:
 - an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;
 - a plurality of light adjustment members, disposed to face at least one of: a boundary surface of the optical waveguide the second end surface of the optical waveguide, wherein the boundary surface is disposed on a face of the optical waveguide other than the first and second end surfaces; and
 - a driving device to change a configuration of the light adjustment member to modulate light propagated by the waveguide.

23. (Previously Presented): The optical modulator of claim 19, wherein the second end surface of the waveguide is aligned with an edge of the flexible light transmitting member.

24. (Previously Presented): The optical modulator of claim 23, comprising a plurality of the flexible light transmitting members, each light transmitting member having an edge aligned with the second end surface of the waveguide.

25. (New). The image recording apparatus according to claim 9, wherein said modulation device switches functions of said optical waveguide in relation to at least one of the plurality of flexible light transmitting members, one function being that said at least one flexible light transmitting member is brought into contact with the boundary surface of said optical waveguide to stop emitting of the light propagating in said optical waveguide from said second end surface to direct light outside via the boundary surface, another function being that said flexible light transmitting member is brought into a non-contact condition with the boundary surface of said optical waveguide to emit the light propagating in said optical waveguide.

26. (New). The exposure head according to claim 4, wherein said light emitting from said second end surface of said optical waveguide to outside is used for image exposure.

27. (New). The exposure head according to claim 21, wherein said light emitting from said second end surface of said optical waveguide to outside is used for image exposure.

28. (New). An optical modulator, comprising:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a flexible light transmitting member, disposed so as to face with a boundary surface of said optical waveguide and has a gap between the flexible light transmitting member and the boundary surface of the optical waveguide;

a modulation device for bringing said flexible light transmitting member into contact with the boundary surface of the optical waveguide; and

a light receiving structure disposed adjacent to the second end surface to use light emitted from the second end surface of the waveguide.

29. (New). An exposure head, comprising:

an optical modulator which includes:

an optical waveguide for receiving light entered from a first end surface thereof and for emitting the light from a second end surface opposing to the first end surface;

a plurality of flexible light transmitting members, disposed so as to face with a boundary surface of said optical waveguide and has a gap between the flexible members and the boundary surface of the optical waveguide, said plurality of flexible light transmitting members being arranged in a direction orthogonal to a traveling direction of the light in the optical waveguide; and

a modulation device for bringing said plurality of flexible light transmitting members into contact with the boundary surface of the optical waveguide, said modulation device being set in correspondence with each of said plurality of flexible light transmitting members; and

a light source allowing the light to enter into the first end surface on a light incidence side of the optical waveguide, and

a light receiving structure disposed adjacent to the second end surface to use the light emitted from the second end surface of the waveguide.

30. (New). The exposure head of claim 29, wherein the modulation device controls the plurality of flexible light transmitting members independently of each other.